

Patent claims

1. A pressure sensor having
 - a diaphragm seal (3, 45) with a separating
5 diaphragm (7, 53),
 - on which a pressure (P) to be measured acts, and
 - a ceramic measuring cell (9, 57), connected
exclusively by inorganic materials to the
diaphragm seal (3, 45),
 - 10 - in which the separating diaphragm (7, 53) and all
further sensor components coming into contact
during measurement with a medium of which the
pressure (P) is to be measured are metallic.
- 15 2. The pressure sensor as claimed in claim 1, in which
the measuring cell (9) is fixed without restraint
in a housing (1) by being seated in the axial
direction on a small tube (11), via which the
ceramic measuring cell (9) is connected to the
20 diaphragm seal (3).
3. The pressure sensor as claimed in claim 1 or 2,
 - in which the measuring cell (9) has a measuring
diaphragm (15),
 - 25 - which subdivides an internal space of the
measuring cell (9) into a first chamber (17) and
a second chamber (19),
 - in which the first chamber (17) is connected to
the diaphragm seal (3) via a small tube (11),
 - 30 - in which the first chamber (17), the small tube
(11) and the diaphragm seal (11) are filled with
a fluid,
 - in which the fluid transfers a pressure (P)
acting on the separating diaphragm (7) to the
35 measuring diaphragm (15),
 - in which a reference pressure acts on the
measuring diaphragm (15) in the second chamber
(19), and

- which has an electromechanical transducer for registering a deflection of the measuring diaphragm dependent on the pressure (P) and the reference pressure and for converting said deflection into an electrical output signal.
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4. The pressure sensor as claimed in claim 3, in which
- the reference pressure (P_R) is a reference pressure prevailing in the ambience and the second chamber (19) has an opening (21) through which the reference pressure is introduced into the second chamber (19), or
 - the second chamber (19) is hermetically sealed and the reference pressure (P_A) is an absolute pressure prevailing in the second chamber (19).
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5. The pressure sensor as claimed in one of the preceding claims, in which the measuring cell (9) is additionally enclosed in the radial direction in a holder.
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6. The pressure sensor as claimed in claim 5, in which the holder has a body (35) made of an elastomer filling an intermediate space between the measuring cell (9) and the housing (1).
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7. The pressure sensor as claimed in claim 1, in which the ceramic measuring cell (57) is fastened by means of a metallic joint (71) in a housing (47) connected to the diaphragm seal (45).
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8. The pressure sensor as claimed in claim 7, in which the housing (47) consists of a material which has a coefficient of thermal expansion which is approximately equal to the coefficient of thermal expansion of the ceramic of the measuring cell.
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9. The pressure sensor as claimed in claim 1, in which
the measuring cell (57) is fastened in an insert
(83) which is arranged in a housing (81), is
connected to the diaphragm seal (45) and reaches
5 around the measuring cell (57) in a pot-like
manner.
10. The pressure sensor as claimed in claim 1, in which
the measuring cell is mounted without restraint and
10 isostatically in a chamber which is connected to
the diaphragm seal and filled with a fluid,
surrounded on all sides by the fluid.